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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/713,777	11/13/2003	Shigeru Nakagawa	089992	8760

20350 7590 08/11/2006

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EXAMINER

DIACOU, ARJ M

ART UNIT PAPER NUMBER

3663

DATE MAILED: 08/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/713,777

Applicant(s)

NAKAGAWA ET AL.

Examiner

Ari M. Diacou

Art Unit

3663

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-7 and 12-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-7 and 12-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. In the remarks filed 5-15-2006, applicant argued the following:
 - A. On page 11, that Naniwae doesn't teach "an optical amplifying unit configured with a semiconductor, wherein the optical amplifying unit amplifies light in a high gain light input from the optical transmission path."
 - B. On page 11, that Li doesn't teach "an optical amplifying unit configured with a semiconductor, wherein the optical amplifying unit amplifies light in a high gain light input from the optical transmission path."
 - C. On page 12, that Mak doesn't teach the deficiencies in Li or Naniwae.
 - D. On page 11, that the double-patenting rejection should be removed in light of the terminal disclaimer.
2. In the remarks filed 8-2-2006, applicant argued the following:
 - E. On page 1, that the applicant elects to prosecute the invention reading on species A, wherein the optical device is a modulator.
3. Arguments A-C are moot in view of the new grounds of rejection, which has been necessitated by amendment.
4. Argument D. is convincing the rejection is hereby withdrawn.
5. Argument E. is noted. For the remainder of prosecution, the optical element will be read to be an optical modulator.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1, 4-7, and 12-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 1, "in high gain" is indefinite.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Naniwae (USP No. 2002/0159705).

- Regarding claim 1, Naniwae discloses an optical module arranged in an optical transmission path, comprising:
 - an optical amplifying unit configured with a semiconductor, [Fig. 2, #9] [¶ 0029]
 - wherein the optical amplifying unit amplifies in high gain light input from the optical transmission path; and [¶ 0029]

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- an optical element configured with a semiconductor, [Fig. 2, #5 #6 #7] [¶ 0029]
- wherein the optical element includes **an optical modulator**, an optical switch or a directional optical coupler and propagates the light amplified by the optical amplifying unit to the optical transmission path. [¶ 0029]

[Paragraph 0029 says that a modulator or amplifier can be placed in any one of the sections 5-9, it is the opinion of the office that this reads on an amplifier being placed in #5 #6 and #7 and a modulator in #9]

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

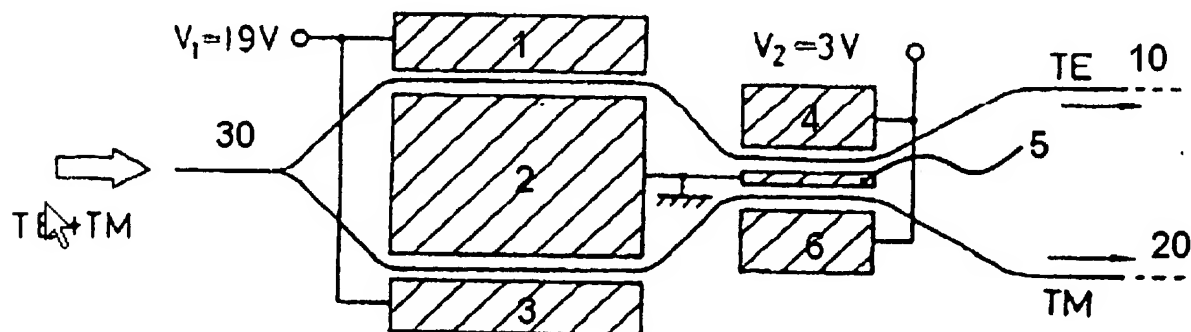
1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

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the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

13. This figure is a recitation of Figure 2 in the European application EP 0 445 347 A2, cited by the applicant, edited to include reference numerals.



14. Claims 4-7 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over, Li (USPAP 2002/0076133) in view of Mak et al. (EP 0445347 A2). Li discloses the invention with all of the limitations of claim 1. Mak discloses:

- Regarding claim 4, Mak discloses the optical module according to claim 1, wherein the optical element comprises:

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- a first optical waveguide through which light from the optical amplifying unit propagates; [Fig. 2, #10]
- a second optical waveguide through which light propagates, wherein the second optical waveguide optically crosses the first optical waveguide to form a crossing portion; [Fig. 2, #20]
- a first lead electrode arranged along the first optical waveguide and the second optical waveguide; [Fig. 2, #5]
- a pair of first control electrodes arranged along the first optical waveguide so as to face each other, with the crossing portion therebetween, to which a control voltage controlling a crossing state is applied via the first lead electrode; [Fig. 2, #4 & #6]
- a second lead electrode arranged so as to face the first lead electrode; and [Fig. 2, #2]
- a pair of second control electrodes arranged along the second optical waveguide so as to face each other, with the crossing portion therebetween, to which the control voltage is applied via the second lead electrode. [Fig. 2, #1 & #3]
- Regarding claim 5, Mak discloses the optical module according to claim 4, wherein the first lead electrode and the second lead electrode are arranged so as to face each other, with the first optical waveguide and the second optical waveguide arranged therebetween. [Fig. 2, #5]

- Regarding claim 6, Mak discloses the optical module according to claim 5, wherein the first lead electrode and the second lead electrode are arranged substantially parallel with each other. [Fig. 2]
- Regarding claim 7, Mak discloses the optical module according to claim 4, wherein the first optical waveguide and the second optical waveguide are arranged in a physically solid crossing state. [Fig. 1]
- Regarding claim 12, Mak discloses the optical module according to claim 4, wherein each of the first control electrodes and the second control electrodes have a control electrode piece divided into a plurality of parts in the longitudinal direction. [Fig. 2, #2 & #5]

but fails to disclose an optical amplifier producing amplified TE and TM signals. Li teaches a semiconductor optical amplifier, as well as the desirability and practice of using that optical amplifier as part of a signal-switching apparatus [¶ 0047-0051]. Therefore, it would have been obvious to one skilled in the art (e.g. an optical engineer) at the time the invention was made, to create an optical module that switched amplified input light, for the advantage of preserving or increasing the signal to noise ratio.

Conclusion

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

16. While patent drawings are not drawn to scale, relationships clearly shown in the drawings of a reference patent cannot be disregarded in determining the patentability of claims. See In re Mraz, 59 CCPA 866, 455 F.2d 1069, 173 USPQ 25 (1972).

17. The references made herein are done so for the convenience of the applicant. They are in no way intended to be limiting. The prior art should be considered in its entirety.

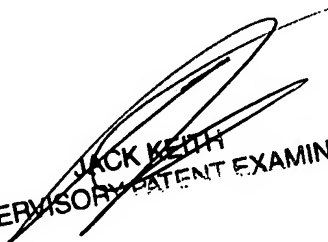
18. The prior art which is cited but not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ari M. Diacou whose telephone number is (571) 272-5591. The examiner can normally be reached on Monday - Friday, 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on (571) 272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AMD 8/7/2006


JACK KEITH
SUPERVISORY PATENT EXAMINER